CELLARIA ELLIS & SOLANDER, 1786 (POLYZOA): ITS TYPE, AND THE NAMES OF THREE SPECIES. Z.N.(S.) 1814

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The genus *Cellaria* was introduced by Ellis & Solander (1786 : 18), but a study of the history of the species concerned must start with Ellis' " *Natural History of the Corallines* ". Ellis (1755 : 46), under the heading Articulated Corallines, No. 1, actually described two species clearly recognizable as belonging to the genus *Cellaria* in its currently accepted sense:

(a) "Bugle Coralline". First synonym: "*Corallina fistulosa fragilis crassior* J.B." [Bauhin]. Hereafter referred to as the Larger Bugle Coralline.

(b) "A smaller species of the same, which differs only in the diameter of the branches". First synonym: "*Corallina fistulosa fragilis subtilior.* J.B." [Bauhin]. Hereafter called the Smaller Bugle Coralline.

The Bugle Coralline is illustrated by five figures in Pl. XXIII, viz. *a* and A–D. Fig. *a* shows "the natural size of the larger Bugle Coralline", A–C, parts of it magnified. D is not mentioned in the text, but is obviously the same form. It seems clear, therefore, that the plate illustrates the Larger Bugle Coralline only, and this is a conclusion of importance.

2. In the 10th edition of *Systema Naturae*, Linnaeus (1758 : 804) introduced *Eschara fistulosa*, based on references to Ellis, Bauhin, Ray, Plukenet and Barrelierus, in that order. Harmer (1923 : 301–3) has examined the works cited in this synonymy and found that, with the exception of Ellis' Bugle Coralline, the species concerned cannot be precisely identified, being, moreover, not always referable to the genus *Cellaria* or even to the phylum Polyzoa. He concluded that the Linnaean species must be considered as having been founded on the work of Ellis. This, in fact, accords well with what is known of the relationship between Ellis and Linnaeus, for the latter consistently based his species of Zoophyte upon the descriptions and admirable illustrations in Ellis' book (Harmer, 1930).

The citation of the first synonym reads: " *Ellis corall.* 46, n.1, t. 23, f. A "; and the second " *Bauh. hist.* 3, p. 811. Corallina fistulosa fragilis crassior ". These two entries, especially the figure reference to Ellis, and the " crassior " from Bauhin place it firmly beyond doubt that *Eschara fistulosa* is the Larger Bugle Coralline of Ellis, which was the conclusion reached by Harmer (1923).

3. In the *Elenchus Zoophytorum*, Pallas (1766 : 61) introduced *Cellularia salicornia*, which he divided into two sections:

(α) [hereafter referred to as *C. salicornia* (α)] for the Larger Bugle Coralline of Ellis, citing Pl. 23 and using the description " crassior ".

(β) [hereafter referred to as *C. salicornia* (β)] for the Smaller Bugle Coralline, as evidenced by " subtilior " and " tenuior " in the synonymy.

Pallas, however, made the first of the series of blunders which have characterized the history of the genus *Cellaria*, for he placed *Eschara fistulosa* L. in the synonymy of *C. salicornia* (β), instead of (α) where it properly belonged. It will, however, be observed that, ignoring for the moment the actions of later

authors, under the provisions of Art. 17 (2) of the International Rules, *C. salicornia* Pallas is available as the valid name of a species. Indeed, considering Linnaeus (1758) and Pallas (1766) alone, the Larger Bugle Coralline should be called *C. fistulosa* L., and the Smaller *C. salicornia* Pallas.

4. In the 12th edition of *Systema Naturae*, Linnaeus (1767 : 1302) classified his species as *Tubularia fistulosa*.

5. The genus *Cellaria* was introduced by Ellis and Solander (1786 : 18) for 18 species, most of which had been included by Pallas in his genus *Cellularia*. Thus *Cellaria* may well have been a deliberate alteration in spelling of *Cellularia*, but it has been subsequently treated as an independent introduction.

Species 13 listed was *Cellaria farciminoides*, for which two synonyms were quoted:

Bugle Coralline. Ellis Corallin, pag. 46, tab. 23

Tubularia fistulosa. Linn. Syst. Nat. Ed. 12. pag. 1302.

Clearly then, *C. farciminoides* is again a name for the Larger Bugle Coralline of Ellis, and is synonymous with *C. salicornia* (α) of Pallas, although the *Elenchus* was not cited.

The other species included have been referred to various modern genera.

6. Lamarck (1801 : 382) considerably restricted the size and scope of *Cellaria*, limiting it to something near to its modern meaning. He listed two species only:

(1) *C. salicornia*, with synonyms *C. farciminoides* Ell. & Sol., and *Tubularia fistulosa* L.

(2) *C. cirrata* Ell. & Sol., later designated as type-species of *Menipea*, see Harmer (1923).

7. Lamouroux (1816 : 127) both defined the genus and designated a type-species by observing: " J'ai conservé le nom de Cellaire au groupe dont les Polypiers avaient pour type le *Cellaria Salicornia* ". Moreover, Lamouroux recognized the distinction between *C. salicornia* (α) and *C. salicornia* (β), and it was specifically the former to which he restricted Pallas' name. So far as nomination of type-species was concerned, Lamouroux was perfectly consistent. The only *Cellaria* in his sense listed by Ellis & Solander (1786 : 18, 26) was *C. farciminoides*, but Lamouroux' designation is valid in accordance with Art. 69a (iv) of the International Rules, since *C. farciminoides* was listed as a synonym. But, since both *C. farciminoides* and *C. salicornia* (α) are junior objective synonyms of *C. fistulosa* (all three being founded on Pl. 23 in Ellis, 1755), the latter is type-species *ipso facto*.

8. Lamouroux' restriction of *Cellaria* and designation of type-species would have been admirable had he employed either of the names *fistulosa* or *farciminoides*; instead, he used *salicornia* restricted to Pallas' division (α). This had the effect of equating *C. salicornia* with *C. fistulosa* and *C. farciminoides*, all as names for the Larger Bugle Coralline. This is exactly what should not have happened (final lines of 3. above). As corollary he then introduced *C. salicornioides* for *C. salicornia* (β) emphasizing that it was a distinct species, and this name will be further considered in 13–15 below.

9. Fleming in *British Animals* (1828 : 534) described one species, using the Linnaean name *fistulosa* placed in a new genus *Farcimia*. It is, however,

impossible to be sure which of the two he was describing, although he cited Ellis (1755, Pl. 23). He stated that the diameter of the branches was " not exceeding the twentieth of an inch ". In the Smaller Bugle Coralline the maximum diameter is about 0·6 mm. (1/40th in.), and in the Larger Bugle Coralline about 1·0 mm. (1/25th in.). His definition thus covers both, but appears to indicate that he had material of the larger species, though this may well have been mixed with specimens of the Smaller Bugle Coralline.

Johnston, in the 1st edition of *British Zoophytes* (1838 : 295), likewise described one species, but called it *Farcimia salicornia*. The illustrations (Pl. 37, fig. 6–7) are so indifferent—greatly inferior to those of Ellis (1755)—that it is impossible to be sure which species was intended. Nevertheless, it was evidently taken as the smaller species by Hassall (1840), who introduced *Farcimia sinuosa*, expressly stating that it was larger than *F. salicornia*.

In the more important 2nd edition of *British Zoophytes*, Johnston (1847 : 355) listed two species, this time placed in the genus *Salicornaria* Cuvier. The first, now called *S. farciminoides*, corresponds to the Smaller Bugle Coralline, whilst the second, corresponding to the Larger Bugle Coralline, was *S. sinuosa*. Busk (1852) likewise employed *Salicornaria farciminoides*, treating *S. sinuosa* as a variety of it.

A definite pattern had now been established. The Smaller Bugle Coralline is the commoner species in British waters, and this was taken as being the only one described by Fleming (1828) and Johnston (1847). The name applied to it throughout this period was one of three (*fistulosa*, *salicornia* and *farciminoides*), all of which had been given or subsequently restricted to the Larger Bugle Coralline. Hassall (1840) unaware of the transposition which had occurred, redescribed the Larger Bugle Coralline as *F. sinuosa*, and his name was used by Johnston (1847) and Busk (1852) writing soon afterwards.

10. Following d'Orbigny (1851), Smitt (1868 : 362) and Hincks (1880 : 106) utilized the genus *Cellaria*, but reverted to the Linnaean epithet *fistulosa* in recognition of its priority. Both, however, accepted established practice and applied the name to the smaller species. The influence of these latter two authors has been enormous. Smitt's *Critical Catalogue* remained the only comprehensive work on Arctic-Boreal Atlantic Polyzoa until 1962, whilst Hincks' *British Marine Polyzoa* remains to this day the most complete account of cold-temperate European species. Having perpetuated an error which no one prior to Harmer (1923) attempted to correct, it is clearly impossible now to restore, as Harmer suggested, the Linnaean name to the Larger Bugle Coralline of Ellis, for which it was originally proposed.

11. In writing this historical summary, I have drawn freely on the earlier review by Harmer (1923). His conclusions were:

(a) that *Eschara fistulosa* L. was based on the Larger Bugle Coralline of Ellis, and should replace *C. sinuosa* Hassall as the name employed for that species;

(b) that *Cellularia salicornia* (α) Pallas, type-species of *Cellaria* selected by Lamouroux, is an objective synonym of *E. fistulosa*. The latter was then regarded as being the type-species;

(c) that the name *C. salicornia* Pallas should be restricted to the (β) form (noted by Hastings (1947) as invalid, since it ignored Lamouroux' earlier restriction to the (α) form).

To have implemented (a) would, as stated in 10. above, have created enormous confusion, with a well-established name being transferred from one well-known species to another. (b) has been accepted; and so has (c) by some authors (Marcus, 1940 (discussion 1950); Prenant & Bobin, 1966), despite the objection raised by Hastings (1947). The result in their works has been the displacement of the Linnaean name from use for the smaller species in favour of Pallas' name *salicornia*. Other authors (Hastings, 1947; Lagaaij, 1952; Buge, 1957; Marine Biological Association, 1957; Gautier, 1962; Galopim de Carvalho, 1963) have used the citation *C. fistulosa* auctt. (non L.), or its equivalent[1]. Authors in both groups have continued to use Hassall's name, *C. sinuosa*, for the Larger Bugle Coralline.

12. The *status quo* is wholly unacceptable, because either no species at all, or else the wrong one, is being called by the name of the type-species *C. fistulosa*. The situation can only be remedied by decision of the International Commission either:

(a) suppressing altogether the name *Eschara fistulosa* Linn., 1758 (= *Tubularia fistulosa* Linn., 1767); or

(b) transferring the name so that it applies not to the Larger Bugle Coralline, but to the Smaller Bugle Coralline, as in recent literature.

Under (a):

(i) the type-species is not altered, but it must be called by one of its synonyms;

(ii) it is undesirable that the name employed should be the objective synonym and second oldest name, *C. salicornia* Pallas, despite its designation by Lamouroux, because it is now being used by some as the name for the Smaller Bugle Coralline;

(iii) the remaining objective synonym is *C. farciminoides* Ell. & Sol., which undoubtedly has the strongest claim. Its use in the past as the name of the Smaller Bugle Coralline has been unimportant but, on the other hand, it is not the name currently in use for the Larger Bugle Coralline;

(iv) *C. sinuosa* is employed at the present time as the name of the Larger Bugle Coralline. As a subjective synonym, it has, however, no direct claim to become type-species of the genus. Thus, despite the undesirability of changing an established name, in the long term it would probably be better to suppress *C. sinuosa* and restore the older name *C. farciminoides*;

[1]Whichever name is to be used, it must be linked to the type specimen of *C. salicornia* Pallas. There is no lectotype available, and a neotype should be chosen from material of the Smaller Bugle Coralline. Specimen 1854.11.15.249 in the British Museum (Natural History) may have been illustrated by Busk (1852), but is not sufficiently good for designation. No specimen can be located which matches Hincks' (1880) figures. Accordingly, the proposed neotype is the specimen labelled *Salicornaria farciminoides*, collected by Mrs. Gatty in Dublin Bay, registered number 1899.7.1.1572.

(v) whichever of the courses (iii) or (iv) were adopted, *C. salicornia* would be the valid name for the Smaller Bugle Coralline. In view of the doubt thrown by Hastings (1947) on the identity of *C. salicornioides* Lamx. (see 13. to 15. below), this name should not be considered as available for the Smaller Bugle Coralline of Ellis.

Under (b):

(vi) the Smaller Bugle Coralline would be named *C. fistulosa* in accordance with much past usage;

(vii) the name *C. salicornia* Pallas, having become ambiguous, would have to be suppressed;

(viii) the name for the Larger Bugle Coralline would be either *C. farciminoides* or *C. sinuosa* as in (iii) or (iv) above;

(ix) it would have to be decided whether the type-species was *C. fistulosa* in its new sense, thereby involving another species, or whether it remained the Larger Bugle Coralline under the name decided in (viii) above.

The arguments which perhaps weight the balance in favour of the first alternative, 12(a) above, are:

(x) that the type-species then remains unambiguously the Larger Bugle Coralline, especially if the name *farciminoides* be employed;

(xi) *C. salicornia* was introduced by Pallas for two species. Alternative (v) merely decides to which it should apply; (vi), however, removes a name from one species and applies it to another.

13. Further difficulties remain. When designating *Cellularia salicornia* (α) Pallas as type-species of *Cellaria* Ellis & Solander, Lamouroux (1816 : 127) introduced *Cellaria salicornioides* for *Cellularia salicornia* (β). But Lamouroux' specimen, from the Mediterranean, may not have been the Smaller Bugle Coralline of Ellis, but another slender species. Whether or not this originally constituted a valid reason for rejecting *salicornioides* as a synonym of *salicornia* (β), subsequent usage has certainly made it so. The whole problem has been carefully considered by Hastings (1947).

14. A species was figured by Savigny (Audouin, 1826), which Audouin referred to *C. salicornioides* Lamx. D'Orbigny (1851), however, considered that it was not that species, and introduced a new name *C. savignyi*. Later, Busk (1858) described *Nellia johnsoni* from Madeira, soon (1859) transferring it to *Cellaria*. Hincks (1880 : 112) used the combination *Cellaria johnsoni*. Hastings established beyond doubt that *C. johnsoni* is a junior synonym of *C. savignyi*, but was unable to decide whether this in turn is a junior synonym of *C. salicornioides* Lamx.

This uncertainty has led to the unsatisfactory citation of the species as *C. salicornioides* Audouin (? Lamouroux) or the equivalent (Hastings, 1947; Marine Biological Association, 1957; Gautier, 1962; Galopim de Carvalho, 1963; Prenant & Bobin, 1966). That the last three of these works, by authors that do or have worked in France, employ this attribution may be taken to indicate that there is no Lamouroux specimen available, and therefore no solution, other than application to the International Commission.

15. There are then, two possible courses of action:

(a) to regard *Cellaria salicornioides* Lamx. as unrecognizable, and to request its suppression by the International Commission. *C. savignyi* d'Orbigny 1951 would then become unambiguously a valid name; or

(b) to request the International Commission to use the plenary powers to designate a neotype of *C. salicornioides* Lamx., such that it becomes unambiguously the senior synonym of *C. savignyi* d'Orb., and *C. johnsoni* (Busk)[1].

The latter is the preferable course of action, since *C. savignyi* has never been used since its introduction and *C. salicornioides* is the name used for the species by recent authors (cited in 13. above).

16. The principal works involved in the foregoing discussion are cited in the following synonymies of the three species involved:

(a) Bugle Coralline: Ellis, 1755 : 46, Pl. XXIII
Eschara fistulosa Linnaeus, 1758 : 804
Cellularia salicornia (α) Pallas, 1766 : 61
Tubularia fistulosa: Linnaeus, 1767 : 1302
Cellaria farciminoides Ellis & Solander, 1786 : 26
Cellaria salicornia: Lamarck, 1801 : 382
Cellaria salicornia: Lamouroux, 1816 : 126
Farcimia sinuosa Hassall, 1840 : 172, Pl. VI, **1–2**
Salicornaria sinuosa: Johnston, 1847 : 356, Pl. LXVI, **8**
Salicornaria farciminoides, var. α: Busk, 1852: 17, Pl. LXIV, **2**[2]
Cellaria sinuosa, Hassall: Hincks, 1880, 109, Pl. XIII, **5–8**
Cellaria fistulosa (L.): Harmer, 1923 : 303
Cellaria sinuosa (Hassall): Lagaaij, 1952 : 48, Pl. 4, **4–5**
Cellaria sinuosa (Hassal 1840): Buge, 1957 : 195, pl. VIII, **6**
Cellaria sinuosa (Hassall): Marine Biological Association 1957 : 349
Cellaria sinuosa (Hassall) 1840 : Gautier, 1962 : 73
Cellaria sinuosa (Hassal, 1840): Galopim de Carvalho, 1963 : 7, fig. 2
Cellaria simuosa (Hassall, 1841): Prenant & Bobin, 1966 : 375, fig. 122

(b) Smaller Bugle Coralline: Ellis, 1755 : 46
Cellularia salicornia (β) Pallas, 1766 : 61
[?] *Cellaria salicornioides* Lamouroux, 1816 : 127
Farcimia fistulosa: Fleming, 1828 : 534

[1]The neotype chosen should probably be one of the two syntypes of *Nellia johnsoni* mentioned by Hastings (1947 : 218). Only one of these slides, British Museum (Natural History) 99.7.1.1588, displays a single piece of *Cellaria*, which, being in good condition, is proposed as neotype. In fact, it is almost certainly not strictly a syntype of *Nellia johnsoni*, although this does not detract from its suitability as neotype. Busk (1859 : 65) wrote: "A figure taken from an imperfect and worn fragment was given in the last part of Zoophytology [original description, Busk 1858 : 125], and the species there referred to the genus *Nellia*. The examination, however, of the beautiful and perfect specimens [topotypes] collected in the present year by Mr. Johnson, necessitates its removal from that genus, and its reference to *Cellaria* Lam." These specimens were illustrated in the 1959 paper, and the proposed neotype is considered to be one of them.

[2]The legend to Pl. LXIV is correct, but in the text (pp. 16–17), Busk erroneously refers his var. α to fig. 3.

Farcimia salicornia: Johnston, 1838 : 295, Pl. XXXVII, **6–7**
Salicornaria farciminoides: Johnston, 1847 : 355, Pl. LXVI, **6–7**
Salicornaria farciminoides: Busk 1852 : 16, Pl. LXIV, 1–3[1]
Cellaria fistulosa (Lin.): Smitt, 1868 : 362, 368, Pl. XX, **18–20**
Cellaria fistulosa, Linnaeus: Hincks, 1880, 106, Pl. XIII, **1–4**
Cellaria salicornia (Pallas): Harmer, 1923 : 303
Cellaria salicornia (Pall.): Marcus, 1940 : 157, fig. 84; 1950 : 11
Cellaria fistulosa auct. (non Linné 1758): Buge, 1957 : 196, Pl. VIII, **5**
Cellaria fistulosa Hincks (? not L.): Marine Biological Association, 1957 : 349
Cellaria fistulosa auct. (non Linné 1758): Gautier, 1962 : 71
Cellaria fistulosa auct.: Galopim de Carvalho, 1963 : 11, fig. 4
Cellaria salicornia (Pallas, 1766): Prenant & Bobin, 1966 : 378, fig. 123

(c) [?] *Cellaria salicornioides* Lamouroux, 1816 : 127
Cellaria salicornioides: Audouin, 1826 : 236, Savigny, Pl. VI, **7**[1–5]
Cellaria savignyi d'Orbigny, 1851 : 28
Nellia Johnsoni Busk, 1858 : 125, Pl. XIX, **2–2a**
Cellaria Johnsoni Busk, 1859 : 65, Pl. XXII, **4–5**
Salicornaria Johnsoni Busk, 1860 : 280, Pl. XXVIII, **4–5**
Cellaria Johnsoni, Busk: Hincks, 1880, 112, Pl. XIII, **9–12**
Cellaria salicornioides Audouin, ? Lamouroux: Hastings, 1947 : 218, Pl. IIA
Cellaria salicornioides Audouin (? Lamouroux): Marine Biological Association, 1957 : 349
Cellaria salicornioides Audouin 1826: Gautier, 1962 : 72
Cellaria salicornioides Audouin 1826, ? Lamouroux 1816: Galopim de Carvalho, 1963, 16, fig. 5
Cellaria salicornioides (? Lamouroux, 1816, Savigny et Audouin, 1826): Prenant & Bobin, 1966 : 382, fig. 124

17. The International Commission on Zoological Nomenclature is requested to use its plenary powers to decide which of the following propositions appear, in its view, best suited to ensure nomenclatorial stability in the genus *Cellaria*:

(1) [*salicornia* and *farciminoides* adopted]

(a) to suppress for the purposes of the Law of Priority but not for the Law of Homonymy the specific name *fistulosa* Linnaeus, 1758, as published in the binomen *Eschara fistulosa*;

(b) to designate a neotype of *Cellularia salicornia* Pallas, 1766, as indicated in 11. above (p. 347, footnote), in accordance with the proposal of Harmer (1923) to restrict the specific name *salicornia* Pallas, 1766, to section (β) of his species;

(c) to place on the Official List of Generic Names in Zoology: *Cellaria* Ellis and Solander, 1786 (gender: feminine), type-species designated by Lamouroux, 1816 (subject to (1)(a) and (b) above), *Cellaria farciminoides* Ellis and Solander, 1786;

[1]The legend to Pl. LXIV is correct, but in the text (pp. 16–17), Busk erroneously refers his var. α to fig. 3.

(2) [*fistulosa* and *farciminoides* adopted]

(a) to designate a neotype of *Eschara fistulosa* Linnaeus, 1758, as indicated in 11. above (p. 347, footnote), in accordance with current usage;

(b) to designate a neotype of *Cellularia salicornia* Pallas, 1766, as indicated in 11. above (p. 347, footnote), in accordance with the proposal of Harmer (1923) to restrict the specific name *salicornia* Pallas, 1766, to section (β) of his species;

(c) to place on the Official List of Generic Names in Zoology: *Cellaria* Ellis and Solander, 1786 (gender: feminine), type-species designated by Lamouroux, 1816 (subject to (2)(a) and (b) above), *Cellaria farciminoides* Ellis and Solander, 1786;

(3) [*salicornia* and *sinuosa* adopted]

(a) to suppress for the purposes of the Law of Priority but not for the Law of Homonymy the specific name *fistulosa* Linnaeus, 1758, as published in the binomen *Eschara fistulosa*;

(b) to designate a neotype of *Cellularia salicornia* Pallas, 1766, as indicated in 11. above (p. 347, footnote), in accordance with the proposal of Harmer (1923) to restrict the specific name *salicornia* Pallas, 1766, to section (β) of his species;

(c) to suppress for the purposes of the Law of Priority but not for the Law of Homonymy the specific name *farciminoides* Ellis and Solander, 1786, as published in the binomen *Cellaria farciminoides*;

(d) to designate *Farcimia sinuosa* Hassall, 1840, type-species of *Cellaria* Ellis and Solander, 1786;

(e) to place on the Official List of Generic Names in Zoology: *Cellaria* Ellis and Solander, 1786 (gender: feminine), type-species by designation under the plenary powers in 3(d) above, *Farcimia sinuosa* Hassall, 1840;

(4) [*fistulosa* and *sinuosa* adopted]

(a) to designate a neotype of *Eschara fistulosa* Linnaeus, 1758, as indicated in 11. above (p. 347, footnote), in accordance with current usage;

(b) to designate a neotype of *Cellularia salicornia* Pallas, 1766, as indicated in 11. above (p. 347, footnote), in accordance with the proposal of Harmer (1923) to restrict the specific name *salicornia* Pallas, 1766, to section (β) of his species;

(c) to suppress for the purposes of the Law of Priority but not for the Law of Homonymy the specific name *farciminoides* Ellis and Solander, 1786, as published in the binomen *Cellaria farciminoides*;

(d) to designate *Farcimia sinuosa* Hassall, 1840, type-species of *Cellaria* Ellis and Solander, 1786;

(e) to place on the Official List of Generic Names in Zoology: *Cellaria* Ellis and Solander, 1786 (gender: feminine), type-species by designation under the plenary powers in (4)(d) above, *Farcimia sinuosa* Hassall, 1840.

And the International Commission is also requested:

(5) to suppress for the purposes of the Law of Priority but not for the Law of Homonymy the specific name *salicornioides* Lamouroux, 1816, as published in the binomen *Cellaria salicornioides*; or

(6) to designate a neotype of *Cellaria salicornioides* Lamouroux, as indicated in 15. above (p. 349, footnote).

18. I should like to thank Dr. Anna B. Hastings and Miss Patricia L. Cook for their helpful comments on the draft of this paper.

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